

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 09/890,548
Filing Date: January 9, 2002
Applicant: Peng Chum Loh
Group Art Unit: 1742
Examiner: Andrew E. Wessman
Title: JEWELLERY ALLOY COMPOSITIONS
Attorney Docket: 5196-000003

Commissioner of Patents and Trademarks
Washington, D.C. 20231

DECLARATION UNDER 37 CFR 1.132

Sir:

The undersigned hereby declares as follows:

1. I am the inventor of the subject matter described and claimed in the above identified patent application, serial no. 09/890,548 which is a 371 of PCT/SG00/00013; filed January 31, 2000. I am an expert in the field of metallurgy having the credentials as per Exhibit A attached hereto and am being associated with Singapore Polytechnic Ventures PTE.

2. In response to the examiner's request to see more data for values close to the range that is claimed (i.e., at least 3.66) and why values outside this range are not suitable, I, the inventor supply the following example where Au:Al ratio is 3.67:

| | |
|-------------------------------|-----------------------------|
| wt of pure gold | 9.61 gm |
| wt of aluminium | 2.63 gm |
| total wt of purple gold alloy | 12.24 gm |
| colour of purple gold alloy | brilliant purplish red |
| hardness range | 259 – 283 Hv |
| average hardness | 270.3 Hv \approx HRC 25.8 |

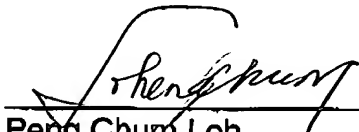
Therefore, together with data previously provided for Au:Al ratio of 3.65, the above example ratio of 3.66 (nominally 3.67) show that values outside this range are not suitable and do not provide the desired hardness and toughness of the purple gold alloy.

3. The examiner considers that the prior art Miyama (JP 62-240729) teaches that the function of Ni and Pd was to adjust the colour of the alloy to a desired state. However, there is nothing in the prior art to suggest the use of Ni and Pd was to make the alloy hard (less brittle), as in the case of the claimed invention. While it is important that the alloy is hard, it must also be tough (malleable) enough so as to use it in intricate jewellery designs. Such intricate designs would not be possible if the alloy is brittle.

4. The examiner also considers that one skilled in the art would have expected that Ni and/or Pd will have the same effect upon the alloy whether it was added into a cast article or powder metallurgy article. I disagree. Powder metallurgy produces a totally different product when compared to casting. Powder metallurgy produces a bond between adjacent particles of different compositions. Each particle

has a composition different from a neighboring particle. This difference is more dramatic in a multi-component system. This is because the outer particle bonding interface of each particle is determined in part by the composition of the next adjacent particle. Minor amounts of an additive such as Ni or Pd can not form the same alloy within each such particle. Each particle outer interface composition differs from its interior composition. No Ni or Pd at all would be found in the interior of the particle. Thus, powder metallurgy there is not a single phase alloy product as in casting.

5. The undersigned acknowledges that willful false statements and the like are punishable by fine or imprisonment, or both (18 USC 1001) and may jeopardize the validity of the application or any patent issuing thereon. The undersigned declares that all statements made of the declarant's own knowledge are true and that all statements made on information and belief are believed to be true.


Peng Chum Loh

Date: 30/04/04

C. V. Of Mr Loh Peng Chum

Mr Loh Peng Chum commenced duty in the Singapore Polytechnic in 1971 and is presently a Principal Lecturer.

Mr Loh, after obtaining his City & Guilds in First Class Part II Shipbuilding Technician Cert., was trained in Advanced Welding Technology and Dockyard Operations at the Sunderland Technical College in the UK, under the Colombo Plan Scholarship in 1966

.Subsequently, he was awarded the Asia Foundation Fellowship to the University of Wisconsin, Madison, and USA where he obtained his Master Of Science Degree in Metallurgical Engineering.

Mr Loh has more than 40 years of experience in the field of Welding and Metallurgy. He began as an Apprentice with Keppel Shipyard and rose through the ranks to become a Senior Officer/Welding & Fabrication Senior Instructor. He next served as Welding & Fabrication Specialist at Bethlehem Steel (s) Pte Ltd before joining the Singapore Polytechnic's School of Mechanical & Manufacturing Engineering where he has been lecturing for the last 31 years.

Mr Loh has been, and still is, extensively involved with Welding & Metallurgical Consultancy work for government, quasi-government and private organisations. Among those who engaged Mr Loh's consultancy services on a yearly basis and yearly renewal for over 3 years included the former SISIR (Welding Inspection and Metallurgy), ODE (Fabrication/Welding of Military Hard-wares), Promet (Welding/ Fabrication Procedures of Oil Rigs /Off-Shore Structures), VosperThornycraft (Distortion Control of High Speed Craft), Tru-Marine (Welding Repairs of Turbines Blades) etc.

He has also done research work in the Welding Of The High Carbon, High Temperature Stainless Steel, Under Water Welding, and lately Purple Gold, which has been commercialised and with 2 Patents Pending.

A certified AWS Welding Inspector since 1977, Mr Loh is a Founder Member and Past Presidents Of The Singapore Welding Society and a Fellow of the Institute of Materials UK, Fellow of the Australia Institution of Welding Technology.

A keen collector of Chinese antiques, he owns a large and fine collection of Chinese porcelain plaques and YiXing tea pots. He is a well-known Tea Connoisseur who has the world's largest personal collection of old Yun-nan Pu Er tea from early 1920s to the Cultural- Revolution Period ,old Pu Er Tea is well known for its health enhancing properties and the 1920s Pu-Er tea was reported to be worth its weight in gold.